

IN THE CLAIMS:

Please substitute the following claims for the same-numbered claims in the application:

1-13. (Canceled)

14. (Currently Amended) A method for determining a manner of classifying ~~a data sample~~
data samples in one of a number of predetermined classes, said method comprising:

associating a plurality of data classifiers ~~data-classifiers~~ in a decision fusion application
comprising said data sample, wherein said data classifiers indicate a manner of classifying said
data sample in said one of a number of predetermined first classes;

computing sample confidence values for each data sample;

determining an overall confidence value for said first classes using said sample
confidence values;

computing assigning a weight value for each of said plurality of data classifiers as a
function of said overall confidence value and said sample confidence values;

classifying each said data sample in a second class by calculating a combined log-
likelihood value for each second class, wherein said log-likelihood comprises a summation of
likelihoods of said plurality of data classifiers weighted by said weight value;

classifying a calculated second class as a correct class for a particular data sample by
selecting a particular second class with a highest calculated combined log-likelihood value; and

improving a classification accuracy of said decision fusion application based on said
correct class.

~~calculating for each of said predetermined classes a weighted summation across said classifiers of a likelihood that the data sample belongs to a particular class, weighted by said weight value;~~

~~designating said data sample as belonging to said particular class for which said weighted summation is greatest in value;~~

~~assigning confidence values for each classifier in said decision fusion application based on said greatest in value; and~~

~~improving a classification accuracy of said decision fusion application based on said confidence values.~~

15. (Previously Presented) The method of claim 14, wherein said weight value for said each of said plurality of data classifiers comprises a data sample confidence component, wherein said data sample confidence component includes a linear combination of an order statistic.

16. (Previously Presented) The method of claim 15, wherein said linear combination is defined by a log-likelihood of respective predetermined classes for said plurality of data classifiers corresponding to said data sample.

17. (Previously Presented) The method of claim 15, wherein said linear combination for a particular data sample comprises a difference between a most likely and a second most likely class associated with a particular classifier.

18. (Previously Presented) The method of claim 16, wherein the weight value comprises said data sample confidence component equaling said log-likelihood of respective predetermined classes for said plurality of data classifiers corresponding to said data sample, and a cumulative component comprising a mean of said data sample confidence component over a plurality of samples.

19. (Previously Presented) The method of claim 18, wherein said cumulative component is successively updated with said data sample confidence component of each said data sample.

20. (Currently Amended) A program storage device readable by computer, tangibly embodying a program of instructions executable by said computer to perform a method for determining a manner of classifying ~~a data sample~~ data samples in one of a number of predetermined classes, said method comprising:

associating a plurality of data classifiers ~~data classifiers~~ in a decision fusion application comprising said data sample, wherein said data classifiers indicate a manner of classifying said data sample in said one of a number of ~~predetermined~~ first classes;

computing sample confidence values for each data sample;

determining an overall confidence value for said first classes using said sample confidence values;

~~computing~~ assigning a weight value for each of said plurality of data classifiers as a function of said overall confidence value and said sample confidence values;

classifying each said data sample in a second class by calculating a combined log-

likelihood value for each second class, wherein said log-likelihood comprises a summation of likelihoods of said plurality of data classifiers weighted by said weight value;

classifying a calculated second class as a correct class for a particular data sample by selecting a particular second class with a highest calculated combined log-likelihood value; and improving a classification accuracy of said decision fusion application based on said correct class;

calculating for each of said predetermined classes a weighted summation across said classifiers of a likelihood that the data sample belongs to a particular class, weighted by said weight value;

designating said data sample as belonging to said particular class for which said weighted summation is greatest in value;

assigning confidence values for each classifier in said decision fusion application based on said greatest in value; and

improving a classification accuracy of said decision fusion application based on said confidence values.

21. (Previously Presented) The program storage device of claim 20, wherein said weight value for said each of said plurality of data classifiers comprises a data sample confidence component, wherein said data sample confidence component includes a linear combination of an order statistic.

22. (Previously Presented) The program storage device of claim 21, wherein said linear

combination is defined by a log-likelihood of respective predetermined classes for said plurality of data classifiers corresponding to said data sample.

23. (Previously Presented) The program storage device of claim 21, wherein said linear combination for a particular data sample comprises a difference between a most likely and a second most likely class associated with a particular classifier.

24. (Previously Presented) The program storage device of claim 22, wherein the weight value comprises said data sample confidence component equaling said log-likelihood of respective predetermined classes for said plurality of data classifiers corresponding to said data sample, and a cumulative component comprising a mean of said data sample confidence component over a plurality of data samples.

25. (Previously Presented): The program storage device of claim 24, wherein said cumulative component is successively updated with said data sample confidence component of each said data sample.

26. (Currently Amended): An apparatus for determining a manner of classifying a data sample ~~data samples~~ in one of a number of predetermined classes, said apparatus comprising:
means for associating a plurality of data classifiers ~~data classifiers~~ in a decision fusion application comprising said data sample, wherein said data classifiers indicate a manner of classifying said data sample in said one of a number of ~~predetermined~~ first classes;

means for computing sample confidence values for each data sample;

means for determining an overall confidence value for said first classes using said sample confidence values;

means for computing assigning a weight value for each of said plurality of data classifiers as a function of said overall confidence value and said sample confidence values;

means for classifying each said data sample in a second class by calculating a combined log-likelihood value for each second class, wherein said log-likelihood comprises a summation of likelihoods of said plurality of data classifiers weighted by said weight value;

means for classifying a calculated second class as a correct class for a particular data sample by selecting a particular second class with a highest calculated combined log-likelihood value; and

means for improving a classification accuracy of said decision fusion application based on said correct class.

means for calculating for each of said predetermined classes a weighted summation across said classifiers of a likelihood that the data sample belongs to a particular class, weighted by said weight value;

means for designating said data sample as belonging to said particular class for which said weighted summation is greatest in value;

means for assigning confidence values for each classifier in said decision fusion application based on said greatest in value; and

means for improving a classification accuracy of said decision fusion application based on said confidence values.

27. (Previously Presented) The method of claim 14, wherein said plurality of data classifiers comprise audio and video classifiers, and wherein said decision fusion application comprises an audiovisual speech recognition application.

28. (Previously Presented) The method of claim 14, wherein said weighted summation comprises an overall confidence component across said predetermined classes.

29. (Currently Amended) The method of claim 28, further comprising determining a relative confidence level relating to an accuracy of said plurality of data classifiers for each data sample in said decision fusion application based on a data sample confidence component and said overall confidence component.

30. (Previously Presented) The program storage device of claim 20, wherein said plurality of data classifiers comprise audio and video classifiers, and wherein said decision fusion application comprises an audiovisual speech recognition application.

31. (Previously Presented) The program storage device of claim 20, wherein said weighted summation comprises an overall confidence component across said predetermined classes.

32. (Previously Presented) The method of claim 31, further comprising determining a relative confidence level relating to an accuracy of said plurality of data classifiers for each data sample

in said decision fusion application based on a data sample confidence component and said overall confidence component.

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